AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS

1. **(ORIGINAL)** A method of determining, in a fluid sample, the presence of particle(s) having substantially a predetermined size or range of size(s), the method comprising the steps of:

illuminating the sample with a first wavelength of light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample with a second wavelength of light,

obtaining a second response signal indicative of the second illumination,

and

determining the presence of the particles having the size or range of size(s) by comparing the first and second signals.

2. **(ORIGINAL)** A method as claimed in claim 1, wherein the first signal response is subtracted from the second signal response.

3. **(ORIGINAL)** A method as claimed in claim 1, wherein a ratio of the first and second signals is obtained.

4. **(ORIGINAL)** A method as claimed in claim 2 or 3, wherein the second wavelength provides a response signal for particle sizes both substantially of the size or in the predetermined range and particle sizes substantially not of the size or outside the predetermined range, and the first wavelength provides a response signal for particle sizes substantially not of the size or outside the predetermined range.

5. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, further comprising the step of:

upon detecting particles of the predetermined size(s), triggering an alarm signal.

6. **(ORIGINAL)** A method as claimed in claim 5, wherein the alarm signal is indicative of an alarm condition for a pyrolysis, smouldering and/or smoke event.

7. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein the first wavelength is infrared light and the second wavelength is blue light.

8. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein the first wavelength of light is in the range of 650nm to 1050nm, and second wavelength of light is in the range of 400nm to 500nm.

9. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, further comprising the steps of:

illuminating the sample with at least one further wavelength of light, in which particles of at least one further size(s) or range of size(s) are relatively responsive to the further wavelength of light,

obtaining at least one further response signal(s) indicative of the further illumination, and

determining the presence of the particles of the further size(s) or range of sizes by comparing the first, second and/or further signal(s).

10. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein at least one of the illuminations is polarised.

11. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein at least one of the illuminations is horizontally and/or vertically polarised.

12. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein the first illumination is a relatively longer wavelength horizontally polarised and the second illumination is a relatively short wavelength vertically polarised.

13. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein the first illumination is a red or infrared light horizontally polarised and the second illumination is a blue wavelength light vertically polarised.

14. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 1, wherein the first illumination is a red or infrared light horizontally polarised and the second illumination is a blue light un-polarised.

15. **(ORIGINAL)** A particle monitor adapted to determine, in a fluid sample, the presence of particle(s) having a predetermined range of size(s), the monitor comprising:

first illumination means for illuminating the sample with a first wavelength of light, the first light being of a wavelength to which particles of a first size(s) are relatively responsive,

a first signal means for providing a first signal indicative of the first illumination,

second illumination means for illuminating the sample with a second wavelength of light, the second light being of a wavelength to which particles of a second size(s) are relatively responsive,

a second signal means for providing a second signal indicative of the second illumination,

logic means for comparing the first and second signals to determine the presence of the particles in the predetermined range.

16. **(PREVIOUSLY PRESENTED)** Apparatus adapted to detect, in a fluid sample, particle(s) having a predetermined range of size(s), said apparatus comprising:

processor means adapted to operate in accordance with a predetermined instruction set,

said apparatus, in conjunction with said instruction set, being adapted to perform the method comprising the steps of:

illuminating the sample with a first wavelength of light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample with a second wavelength of light,

obtaining a second response signal indicative of the second illumination,

and

determining the presence of the particles having the size or range of size(s) by comparing the first and second signals.

17. **(ORIGINAL)** A gain control apparatus adapted for providing gain control in a particle monitor, said apparatus comprising:

a first gain stage having a first amplifier,

a second gain stage having a second amplifier, and a voltage or current-controlled feedback from the output of the second stage to the input of the first stage so that the frequency response of the amplifier is unaffected by said feedback.

18. **(ORIGINAL)** An apparatus as claimed in claim 17, wherein the feedback comprises at least a light dependent resistor.

19. **(ORIGINAL)** An apparatus as claimed in claim 17 or 18, wherein a gain control function is non-linear.

20. **(PREVIOUSLY PRESENTED)** An apparatus as claimed in claim 16, wherein the feedback comprises at least a light dependent resistor.

21. **(PREVIOUSLY PRESENTED)** A monitor as claimed in claim 15 comprising the gain control of any one of claims 17 to 18.

22. **(ORIGINAL)** A method of determining a service interval for a particle monitor, the method comprising the steps of:

determining the presence of dust particle(s) distinctly from smoke particles,

providing a measure of the presence of the dust particle(s), and

providing a service indicating when the measure has reached a predetermined threshold.

23. **(CURRENTLY AMENDED)** A method as claimed in claim 22, wherein the measure is of particle(s) number, frequency, concentration and/or duration of detection.

24. **(ORIGINAL)** A particle monitoring chamber, comprising:

a first iris operable in association with a source of illumination,

a lens adapted to focus impinging light toward a receiver cell, and

a primary iris configured to substantially prevent light emanating directly from the first iris to impinge on the lens.

25. **(ORIGINAL)** A particle monitoring chamber, comprising:

a first lens operable in association with a source of illumination,

a lens adapted to focus impinging light toward a receiver cell, and

a primary iris configured to substantially prevent light emanating directly from the first lens to impinge on the second lens.

26. **(ORIGINAL)** A particle monitoring chamber, comprising:

a source of illumination,

a lens adapted to focus impinging light toward a receiver cell, and

a primary iris configured to substantially prevent light emanating directly from the source of illumination from impinging on the lens.

27. **(ORIGINAL)** A chamber as claimed in claim 24, 25 or 26, wherein the primary iris forms a physical barrier to the directly emanating light.

28. **(CURRENTLY AMENDED)** A chamber as claimed in claims 24, 25 or 26, wherein the lens is further configured to substantially prevent light reflecting from the primary iris onto the receiving cell.

29. **(CURRENTLY AMENDED)** A chamber as claimed in claims 24, 25 or 26, wherein the lens is a biconvex lens.

30. **(CURRENTLY AMENDED)** A chamber as claimed in claims 24, 25 or 26, wherein the lens is an aspheric lens.

31. **(CURRENTLY AMENDED)** A chamber as claimed in claims 24, 25 or 26, wherein the impinging light is second and/or third order light emanating from reflections off the primary iris and wherein the impinging second and/or third order light is focused onto a relatively inactive part of the receiver.

32. **(CURRENTLY AMENDED)** A particle monitor including a chamber as claimed in claims 24, 25 or 26.

33. **(PREVIOUSLY PRESENTED)** In combination, a biconvex lens and a monitor as claimed in claim 15.

34. **(ORIGINAL)** A method of determining the velocity of fluid flowing through a given area, the method comprising the steps of:

providing a first sensor in the path of the fluid flow at a point of relatively low fluid velocity,

providing a second sensor in the path of the fluid flow at a point of relatively higher fluid velocity, the second sensor having substantially similar temperature characteristics to the first sensor,

determining the fluid velocity based on a measure of the cooling effect of the fluid passing the first and second sensors.

35. **(ORIGINAL)** A method as claimed in claim 34, wherein the first sensor is shielded from the fluid flow.

36. **(ORIGINAL)** A method as claimed in claim 34 or 35, wherein the measure of cooling effect is based on the rate of cooling.

37. **(PREVIOUSLY PRESENTED)** A method as claimed in claim 34 or 35, wherein the area is in a particle monitor.

38. **(ORIGINAL)** Apparatus adapted to determine the velocity of fluid flowing through a given area, comprising:

a first sensor adapted to be provided in the path of the fluid flow at a point of relatively low fluid velocity,

a second sensor adapted to be provided in the path of the fluid flow at a point of relatively higher fluid velocity, the second sensor having substantially similar temperature characteristics as the first sensor,

comparator means adapted to determine the fluid velocity based on a measure of the cooling effect of the fluid passing the first and second sensors.

39. **(ORIGINAL)** A method of mounting a housing on a duct, the method comprising the steps of:

providing at least one tab element in association with the housing,

locating the housing proximate the mounting area of the duct,

shaping the tab element to substantially fit a profile of the duct proximate the mounting area, and

attaching the housing using the tab element.

40. **(ORIGINAL)** A method as claimed in claim 39, wherein the tab element is integral with the housing.

41. **(ORIGINAL)** A housing arrangement adapted to be mounted on a duct, comprising:

at least one tab element associated with the housing, and

the tab element being adapted to be shaped to substantially fit a profile of the duct proximate a mounting area.

42. **(ORIGINAL)** An arrangement as claimed in claim 41, wherein the tab is integral with the housing.

43. **(ORIGINAL)** An arrangement as claimed in claim 41 or 42, being a particle monitor housing.

44. **(PREVIOUSLY PRESENTED)** Apparatus adapted to detect particle(s), said apparatus including:

processor means adapted to operate in accordance with a predetermined instruction set,

said apparatus, in conjunction with said instruction set, being adapted to perform the method comprising the steps of:

illuminating the sample with a first wavelength of light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample with a second wavelength of light,

obtaining a second response signal indicative of the second illumination,

and

determining the presence of the particles having the size or range of size(s) by comparing the first and second signals.

45. **(PREVIOUSLY PRESENTED)** A computer program product including:

a computer usable medium having computer readable program code and computer readable system code embodied on said medium for detecting particle(s) in accordance with claim 1, in association with a data processing system, said computer program product including:

computer readable code within said computer usable medium for determining the presence of particle(s) in a fluid and characterizing said particles.

46. **(ORIGINAL)** A particle monitor adapted to determine, in a fluid sample, the presence of particle(s) having a predetermined size or ranges of sizes, the monitor comprising:

output means adapted to provide, as an indication of the particle(s), a logarithmic scaled signal.

47. **(ORIGINAL)** A monitor as claimed in claim 46, wherein the monitor is a monitor as herein disclosed.

48. **(ORIGINAL)** A monitor as claimed in claim 46, wherein the scaled signal is provided to an alarm.

49. **(ORIGINAL)** A smoke detector comprising the monitor of claim 46, 47 or 48.

50. **(NEW)** A monitor as claimed in claim 15 or 46, wherein the monitor is a point detector.

51. **(NEW)** A monitor as claimed in claim 21, wherein the monitor is a point detector.

52. **(NEW)** A monitor as claimed in claim 32, wherein the monitor is a point detector.

53. **(NEW)** An apparatus as claimed in any one of claims 16, 38 or 44, wherein the apparatus is a point detector.

54. **(NEW)** A smoke detector as claimed in claim 49, wherein the detector is a point detector.

55. **(NEW)** A monitor as claimed in claim 15 or 46, wherein the monitor is an aspirated detector.

56. **(NEW)** A monitor as claimed in claim 21, wherein the monitor is an aspirated detector.

57. **(NEW)** A monitor as claimed in claim 32, wherein the monitor is an aspirated detector.

58. **(NEW)** An apparatus as claimed in any one of claims 16, 38 or 44, wherein the apparatus is an aspirated detector.

59. **(NEW)** A smoke detector as claimed in claim 49, wherein the detector is an aspirated detector.

60. **(NEW)** A monitor as claimed in claim 15 or 46, wherein the monitor is a particle monitor.

61. **(NEW)** A monitor as claimed in claim 21, wherein the monitor is a particle monitor.

62. **(NEW)** A monitor as claimed in claim 32, wherein the monitor is a particle monitor.

63. **(NEW)** An apparatus as claimed in any one of claims 16, 38 or 44, wherein the apparatus is a particle monitor.

64. **(NEW)** A smoke detector as claimed in claim 49, wherein the detector is a particle monitor.

65. **(NEW)** Apparatus adapted to determine a service interval for a particle monitor, said apparatus including:
processor means adapted to operate in accordance with a predetermined instruction set, said apparatus, in conjunction with said instruction set, being adapted to perform a method of determining a service interval for a particle monitor, the method comprising the steps of:

determining the presence of dust particle(s) distinctly from smoke particles,
providing a measure of the presence of the dust particle(s), and
providing a service indicating when the measure has reached a predetermined threshold.

66. **(NEW)** An apparatus as claimed in claim 65, wherein the measure is of particle(s) number, frequency, concentration and/or duration of detection.